

REMARKS

Upon entry of this amendment, claims 1-14 are all the claims pending in the application. Claim 15 is canceled by this amendment.

I. Claim Rejections under 35 U.S.C. § 103(a)

The Examiner has rejected claims 1 and 15 under 35 U.S.C. § 103(a) as being unpatentable over Sakoda et al. (U.S. 6,670,221) in view of Yamanaka (U.S. 5,436,492).

Claim 1 recites the features of a sealing resin formed so as to have an opening over a surface of an integrated circuit, and a light-transmitting cap disposed so as to cover the opening of the sealing resin. The Examiner recognizes that Sakoda does not teach or suggest the feature of a light-transmitting cap. In an attempt to cure this deficiency, the Examiner applies Yamanaka and alleges that it would have been obvious to combine the teachings of Sakoda and Yamanaka so as to arrive at the claimed invention.

In particular, the Examiner alleges that it would have been obvious to incorporate the glass cover 4, as disclosed Yamanaka, in the fingerprint sensor apparatus 1 of Sakoda in order to allow light to pass through the glass cover. Applicant respectfully disagrees.

Sakoda discloses a semiconductor device having a built-in fingerprint sensor (see col. 1, lines 44-45). In particular, Sakoda discloses a semiconductor device that includes a semiconductor chip 3 in which a sensor part 2 as a fingerprint sensor is formed (see Fig. 1 and col. 1, lines 45-47). Sakoda discloses that the sensor part 2 is directly contacted by a user's finger, and thus, indicates that the sensor part 2 must be exposed on the front surface of the fingerprint sensor apparatus 1 in order to be able to receive the direct contact of a user's finger (see col. 1, lines 59-63).

Yamanaka, on the other hand, discloses a CCD image sensor comprising a base 3, a CCD chip 2 mounted substantially on the center of an upper surface of the base 3, and a cover 4 disposed over the CCD chip 2, the cover 4 being made of glass of high light transmittance (see col. 1, lines 30-35).

As mentioned above, the Examiner has taken the position that it would have been obvious to incorporate the glass cover 4, as disclosed Yamanaka, in the fingerprint sensor apparatus 1 of Sakoda in order to allow light to pass through the glass cover.

As discussed above, however, the fingerprint apparatus 1 of Sakoda requires that the fingerprint sensor 2 be directly contacted by a user's finger, and therefore, that the fingerprint sensor 2 be exposed on the surface of the apparatus (see col. 1, lines 59-63). Therefore, as the fingerprint sensor 2 must be exposed (i.e., uncovered) so that a user can directly contact the sensor 2 with their finger, Applicant respectfully submits that there would be no reason for one of ordinary skill in the art to dispose the glass cover 4 of Yamanaka over the fingerprint sensor 2 of Sakoda, and moreover, that such a modification would render Sakoda's device wholly inoperable.

In other words, as the fingerprint sensor 2 of Sakoda requires direct contact with a user's finger, the inclusion of the cover 4 of Yamanaka over the fingerprint sensor 2 would prevent the direct contact that is necessary for the fingerprint sensor 2 to operate. Accordingly, because the modification to Sakoda proposed by the Examiner would render Sakoda's device inoperable for its intended purpose, Applicant respectfully submits that that there would be no motivation for one of ordinary skill in the art to make the modification proposed by the Examiner. As stated in MPEP 2143.01, if a proposed modification would render the prior art invention being modified

inoperable for its intended purpose, then there is no suggestion or motivation to make the proposed modification.

Based on the foregoing, Applicant respectfully submits that claim 1 is patentable over the cited prior art, an indication of which is respectfully requested.

In addition, Applicants note that claim 1 has been amended to recite the features of a plurality of electrodes formed in a vicinity of a periphery of the integrated circuit, and a sealing resin for sealing the main surface of the semiconductor chip and at least a first side surface of each of the electrodes, the sealing resin formed so as to have an opening over a surface of the integrated circuit. Applicants respectfully submit that the combination of cited prior art also fails to disclose, suggest or otherwise render obvious these features recited in claim 1.

As shown in Fig. 1 of Sakoda, a seal resin 11 encapsulates a part of the semiconductor chip 3 and the gold wires 10 (see col. 1, lines 56-58). The sealing resin 11, however, does not seal any surface of the fingerprint sensor 2 (see Fig. 1 and col. 1, lines 64-66).

In view of the foregoing, Applicants respectfully submit that Sakoda does not disclose or suggest a plurality of electrodes formed in a vicinity of a periphery of the integrated circuit, and a sealing resin for sealing the main surface of the semiconductor chip and at least a first side surface of each of the electrodes, the sealing resin formed so as to have an opening over a surface of the integrated circuit. Further, Applicants submit that Yamanaka fails to cure this deficiency of Sakoda. As noted above, Sakoda was cited merely for the teaching of a glass cover 4 disposed over a CCD sensor.

In view of the foregoing, Applicants submit that claim 1 is patentable over the cited prior art, an indication of which is respectfully requested. As noted above, claim 15 has been canceled by this amendment.

II. Allowable Subject Matter

Applicant thanks the Examiner for indicating that claims 5-14 are allowed, and that claims 2-4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims.

Applicant notes that minor changes have been made to claims 2, 3, 5-8 and 10-13 for improved clarity and to improve the U.S. form of the claims. Such changes are not made in response to any prior art or other rejection.

III. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may best be resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Takashi NOGUCHI

By: Kenneth Fields
Kenneth W. Fields
Registration No. 52,430
Attorney for Applicant

KWF/abm
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
March 29, 2005